CLAIMS

1. A method for transmitting power wirelessly in a system that comprises a power transmitter and at least one power receiver, the power transmitter comprising a light source, means for directing the light emitted by the light source in a desired direction, and means for controlling the intensity of the light emitted by the light source, and the power receiver comprising a photo-detector for receiving emitted light and for converting it into electric current, the method comprising

transmitting with the light source of the power transmitter a substantially parallel light, the intensity of which is substantially less than the allowed maximum eye exposure,

detecting by the photo-detector of the power receiver the light emitted by the light source,

determining the integrity of the light beam emitted by the light source and detected by the photo-detector,

transmitting a control signal is transmitted from the power receiver to the power transmitter in response to finding the light beam intact, and

increasing the intensity of the light transmitted by the light source of the power transmitter in response to receiving said control signal from the power receiver concerning the integrity of the light beam.

2. A method as claimed in claim 1, further comprising

transmitting from the power receiver the control signal on the reception of the intact light beam at regular intervals,

ending the transmission of the control signal in response to detecting a disturbance in the light emitted by the light source, and

switching off the light source of the power transmitter.

3. A method as claimed in claim 1, wherein the photo-detector is a photo-detector matrix,

whereby the integrity of the light beam emitted by the light source is determined on the basis of the active matrix frames of the photo-detector matrix.

4. A method as claimed in claim 1, further comprising

registering the power receiver to the power transmitter before power transmission by transmitting from the power receiver a registration message by using the control signal.

5. A method as claimed in claim 4, further comprising

switching on a LED of the power receiver operating in the infrared range after the registration message is transmitted.

6. A method as claimed in claim 5, further comprising

determining the position of the power receiver with a PSD diode of the power transmitter, which is arranged to detect the LED operating in the infrared range in the power receiver in response to the reception of the registration message.

7. A method as claimed in claim 6, further comprising

deflecting the light emitted by the light source of the power transmitter according to a predetermined route in the direction of the power receiver to determine the exact location of the power receiver.

8. A method as claimed in claim 1, further comprising

connecting the power receiver to a power-consuming external device or to charging means, such as a battery, and

conducting the electric current generated by the photo-detector to the power-consuming external device or to the charging means.

9. A wireless power transmission system that comprises a power transmitter and at least one power receiver,

the power transmitter comprising a light source, means for directing the light emitted by the light source in a desired direction, and control means for controlling the intensity of the light emitted by the light source in such a manner that the intensity is substantially less than the allowed maximum eye exposure;

the power receiver comprises a photo-detector for receiving and detecting the light emitted by the light source and for converting it into electric current, said photo-detector being arranged to determine the integrity of the received light beam, and transmission means responsive to the determination of integrity, which are arranged to transmit a control signal to the power transmitter in response to finding the light beam intact;

whereby in response to receiving the control signal, the control means of the power transmitter are arranged to increase the intensity of the light transmitted by the light source of the power transmitter.

10. A system as claimed in claim 9, wherein

the power receiver is arranged to transmit to the power transmitter the control signal on the reception of the intact light beam at regular intervals,

and, in response to detecting a disturbance in the light emitted by the light source, to stop the transmission of the control signal,

whereby the power transmitter is arranged to switch off the light source.

11. A system as claimed in claim 9, wherein

the photo-detector is a photo-detector matrix, and the integrity of the light beam emitted by the light source is determined on the basis of the active matrix frames of the photo-detector matrix.

12. A system as claimed in claim 11 wherein

the photo-detector matrix is a prismatic square matrix, the planes of which are set so that an incoming light beam is reflected back to its direction of incidence through reflection via at least two planes.

13. A system as claimed in claim 9, wherein

the power receiver is arranged to register to the power transmitter before power transmission by transmitting a registration message in the control signal.

14. A system as claimed in claim 13, wherein

the power receiver comprises a light emitting diode operating in the infrared range, which is arranged to be switched on after the registration message is transmitted.

15. A system as claimed in claim 14, wherein

the power transmitter comprises a PSD diode that is arranged to detect the LED operating in the infrared range in the power receiver in response to receiving the registration message.

16. A system as claimed in claim 15, wherein

the power transmitter comprises deflection means for deflecting the light emitted by the light source according to a predetermined route in the direction of the power receiver to determine the exact location of the power receiver.

17. A system as claimed in claim 9, wherein

the transmission means for transmitting the control signal comprise a short-range radio-frequency transmitter, such as a Bluetooth or WLAN transmitter.

18. A system as claimed in claim 9, wherein

the power receiver is arranged to be connected to a power-consuming external device or to charging means, such as a battery, and

the power receiver comprises conducting means for conducting the electric current generated by the first photo-detector to the power-consuming external device or the charging means.

19. A system as claimed in claim 9, wherein

the light source is a laser or a light emitting diode (LED).

20. A power transmitter for transmitting power wirelessly, comprising a light source, means for directing the light emitted by the light source in a desired direction, control means for controlling the intensity of the light emitted by the light source in such a manner that the intensity is substantially less than the allowed maximum eye exposure, and a receiver for receiving a control signal transmitted by a power receiver, the control signal indicating the integrity of the received emitted light beam,

whereby in response to receiving the control signal, the control means of the power transmitter are arranged to increase the intensity of the light transmitted by the light source of the power transmitter.

21. A power receiver a photo-detector for receiving and detecting the light emitted by the light source and for converting it into electric current, said photo-detector being arranged to determine the integrity of the received light beam, and transmission means responsive to the determination of integrity, which are arranged to transmit a control signal to the power transmitter in response to finding the light beam intact.

22. A wireless surveillance system that comprises a base station and at least one surveillance device,

the base station comprising a radio frequency transceiver for establishing a telecommunications connection to said at least one surveillance device, a power transmitter that comprises a light source, means for directing the light emitted by the light source in a desired direction, and control means for controlling the intensity of the light emitted by the light source in such a manner that the intensity is substantially less than the allowed maximum eye exposure, and a receiver for receiving a control signal transmitted by a power receiver, the control signal indicating the integrity of the received emitted light beam; and

the surveillance device comprising means for generating surveillance data, a radio frequency transceiver for transmitting the surveillance data wirelessly to the base station, a power receiver that comprises a photo-detector for detecting said emitted light and for determining the integrity of the

received light beam, and transmission means responsive to said determination of integrity, which are arranged to transmit a control signal to the power transmitter in response to finding the light beam intact,

whereby in response to receiving the control signal, the control means of the power transmitter are arranged to increase the intensity of the light transmitted by the light source of the power transmitter.

23. A surveillance system as claimed in claim 22, wherein

the photo-detector is a photo-detector matrix, and the integrity of the light beam emitted by the light source is arranged to be determined on the basis of the active matrix frames of the photo-detector matrix.

24. A surveillance system as claimed in claim 23, wherein

the photo-detector matrix is a prismatic square matrix, the planes of which are set so that an incoming light beam is reflected back to its direction of incidence through reflection via at least two planes.

25. A surveillance system as claimed in claim 22, wherein

the wireless radio frequency data transmission is arranged through a Bluetooth or WLAN connection.